

Patent
SFTGB Docket No.: 19308.0028U1
03SKY0029

REMARKS

This is a full and timely response to the non-final Office Action mailed by the U.S. Patent and Trademark Office on May 31, 2005. Upon entry of the attached amendments, claims 1-19 are pending in the application. Claims 1, 3, 6, 7, 11, 12, 16, and 18 have been amended. The subject matter of the amended claims is supported in at least the schematic of Figure 3 and the related detailed description. Consequently, no new matter is added to the present application.

The following remarks address each rejection against Applicant's claimed systems and methods. Accordingly, reconsideration and allowance of the application and presently pending claims 1-19 are respectfully requested.

I. Claim Rejection Under 35 U.S.C. § 112 – Claim 18

A. Statement of the Rejection

The Office Action indicates that claim 18 is rejected under 35 U.S.C. § 112, second paragraph, as allegedly being indefinite for failing to particularly point out and distinctly claim the subject matter which Applicants regard as the invention. Specifically, the Office Action indicates that “the claim limitation ‘second’ renders the claim indefinite.”

B. Discussion of the Rejection

Applicant has amended claim 18 such that “second” modifies the word “frequency.” The claim as amended is definite and distinctly claims subject matter that the Applicant regards as the invention. Accordingly, the rejection of claim 18 should be withdrawn.

II. Response to 35 U.S.C. §102 Rejections – Claims 1-2 and 16-19

A. Statement of the Rejection

Claims 1-2 and 16-19 presently stand rejected under 35 U.S.C. §102(b) as allegedly being anticipated by U.S. Patent No. 5,327,580 to Vignali *et al.*, hereafter, *Vignali*.

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B. Discussion of the Rejection - Claims 1-2 and 16-19

1. Claims 1-2

Applicant's amended independent claim 1 recites features that are not disclosed by the cited reference.

It is well established that "anticipation requires the disclosure in a single prior art reference of each element of the claim under consideration." *W.L. Gore & Associates, Inc. v. Garlock, Inc.*, 721 Fed 2d 1540, 220 U.S.P.Q. 303, 313 (Fed Cir 1983). The cited reference fails to disclose, teach, or suggest each feature of the claimed invention.

For convenience of analysis, Applicant's independent claim 1, as amended, is repeated below in its entirety.

1. A method for filtering a receive signal in a wireless receiver, comprising:
providing a received signal to an amplifier; and
filtering the received signal such that noise contributed by the filter is blocked from an output of the amplifier at a first frequency, *wherein filtering at the first frequency is performed by applying a single voltage-to-current conversion and a single current-to-voltage conversion.*

(Applicant's amended independent claim 1 – *emphasis added.*)

The cited art of record fails to disclose, teach, or suggest at least the emphasized feature of pending claim 1 as shown above. Consequently, claim 1 is allowable.

Specifically, *Vignali* fails to disclose, teach, or suggest Applicant's claimed method for filtering a receive signal in a wireless receiver for at least the reason that *Vignali* fails to disclose, teach, or suggest a method wherein "filtering at the first frequency is performed by applying a single voltage-to-current conversion and a single current-to-voltage conversion."

FIG. 2A of *Vignali* illustrates a multi-stage filter comprising FDNR network 50 and FDNR network 52. Each FDNR network performs a separate and distinct current-to-voltage conversion over the range of frequencies from 0 to about 300 Hz. Furthermore, each FDNR network is associated with an amplifier that performs a separate and distinct voltage-to-current conversion over the range of frequencies from 0 to about 300 Hz. A multi-stage biquad filter as illustrated in *Vignali* fails to disclose, teach, or suggest filtering at the first frequency is performed by applying a single voltage-to-current conversion and a single

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current-to-voltage conversion. Consequently, *Vignali* fails to disclose, teach, or suggest Applicant's claimed method which recites "filtering at the first frequency is performed by applying a single voltage-to-current conversion and a single current-to-voltage conversion." Accordingly, for at least this reason, *Vignali* does not anticipate Applicant's claimed method for filtering a receive signal in a wireless receiver. Thus, Applicant's independent claim 1 is allowable.

Because independent claim 1 is allowable, dependent claim 2, which depends directly from claim 1, is also allowable. See *In re Fine*, 837, F.2d 1071, 5 U.S.P.Q.2d 1596, 1598 (Fed. Cir. 1988). Accordingly, Applicant respectfully requests that the rejection of claims 1 and 2 be withdrawn.

2. Claims 16-19

Applicant's amended independent claim 16 recites features that are not disclosed by the cited reference.

For convenience of analysis, Applicant's independent claim 16, as amended, is repeated below in its entirety.

16. A portable transceiver, comprising:
means for modulating a data signal;
means for upconverting the modulated data signal and
provide a radio frequency (RF) signal;
means for transmitting the RF signal;
means for converting a received signal to a baseband signal;
and
means for filtering the baseband signal so that noise
generated by the filter means is prevented from appearing on
the received signal at a first frequency, *wherein the means for
filtering performs a single voltage-to-current conversion and
a single current-to-voltage conversion.*

(Applicant's amended independent claim 16 – *emphasis added.*)

The cited art of record fails to disclose, teach, or suggest at least the emphasized feature of pending claim 16 as shown above. Consequently, claim 16 is allowable.

Specifically, *Vignali* fails to disclose, teach, or suggest Applicant's claimed portable transceiver for at least the reason that *Vignali* fails to disclose, teach, or suggest a means for

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filtering . . . , “wherein the means for filtering performs a single voltage-to-current conversion and a single current-to-voltage conversion.”

As shown above, FIGs. 2A and 2C of *Vignali* illustrates a multi-stage filter comprising FDNR network 50 and FDNR network 52. Each FDNR network performs a separate and distinct current-to-voltage conversion over the range of frequencies from 0 to about 300 Hz. Furthermore, each FDNR network is associated with an amplifier that performs a separate and distinct voltage-to-current conversion over the range of frequencies from 0 to about 300 Hz. A multi-stage biquad filter as illustrated in *Vignali* fails to disclose, teach, or suggest a means for filtering that performs a single voltage-to-current conversion and a single current-to-voltage conversion. Accordingly, for at least this reason, *Vignali* does not anticipate Applicant’s claimed portable transceiver. Thus, Applicant’s independent claim 16 is allowable.

Because independent claim 16 is allowable, dependent claims 17-19, which depend either directly or indirectly from claim 16, are also allowable. *See In re Fine, supra*. Accordingly, Applicant respectfully requests that the rejection of claims 16-19 be withdrawn.

III. Response to 35 U.S.C. § 103 Rejections – Claims 3-15

A. Statement of the Rejections

Claims 3-15 presently stand rejected under 35 U.S.C. § 103(a) as allegedly being unpatentable over *Vignali* in view of U.S. Patent No. 4,185,150 to Regan, hereafter *Regan*.

B. Discussion of the Rejections

Applicant’s amended independent claims 1, 6, 11, and 16, each recite features that are not disclosed by the proposed combination.

For a claim to be properly rejected under 35 U.S.C. §103, “[t]he PTO has the burden under section 103 to establish a *prima facie* case of obviousness. It can satisfy this burden only by showing some objective teaching in the prior art or that knowledge generally available to one of ordinary skill in the art would lead that individual to combine the relevant teachings of the references.” *In re Fine*, 837 F.2d 1071, 5 U.S.P.Q.2d 1596, 1598 (Fed. Cir. 1988) (Citations omitted). Further, to establish a *prima facie* case of obviousness, the prior art reference (or references when combined) must teach or suggest all the claim limitations. The teaching or suggestion to make the claimed combination and the reasonable expectation

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of success must both be found in the prior art and not based on applicant's disclosure. *In re Vaeck*, 947 F.2d 488, 20 USPQ2d 1438 (Fed. Cir. 1991). Further, "[t]he mere fact that the prior art may be modified in the manner suggested by the Examiner does not make the modification obvious unless the prior art suggested the desirability of the modification." *In re Fritch*, 972 F.2d 1260, 1266, 23 U.S.P.Q.2d 1780 (Fed Cir. 1992).

1. Claims 3-5

Applicant's amended independent claim 1, as shown, recites features that are not disclosed by the proposed combination of references.

Specifically, the proposed combination of *Vignali* and *Regan* fails to disclose, teach, or suggest Applicant's claimed method wherein "filtering at the first frequency is performed by applying a single voltage-to-current conversion and a single current-to-voltage conversion."

Regan, like *Vignali*, apparently illustrates and describes multiple FDNRs 30, 31 in a multiple-stage arrangement forming a biquad filter. Accordingly, the proposed combination of references that each separately illustrate and describe multi-stage biquad filters cannot render Applicant's claimed filter obvious for at least the reason that the proposed combination does not disclose, teach, or suggest "filtering at the first frequency is performed by applying a single voltage-to-current conversion and a single current-to-voltage conversion." Accordingly, Applicant's dependent claims 3-5, which depend directly or indirectly from claim 1, are also not obvious in light of the proposed combination. Accordingly, Applicant respectfully requests that the rejection of claims 3-5 be withdrawn.

2. Claims 6-10

For convenience of analysis, Applicant's independent claim 6, as amended, is repeated below in its entirety.

6. A low-noise filter for a wireless receiver, comprising:
an amplifier; and
a filter comprising a single frequency dependent negative resistance implemented using a general impedance converter to realize a bi-quad filter, wherein the amplifier and the frequency dependent negative resistance perform a voltage-to-current conversion and a current-to-voltage conversion, respectively at a first frequency.

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(Applicant's amended independent claim 6 – *emphasis added*.)

The proposed combination of references fails to disclose, teach, or suggest at least the emphasized element of pending claim 6 as shown above. Consequently, claim 6 is allowable.

Specifically, the proposed combination of *Vignali* and *Regan* fails to disclose, teach, or suggest Applicant's claimed low-noise filter for a wireless receiver for at least the reason that the references alone or in combination fail to disclose, teach, or suggest, "a filter comprising a single frequency dependent negative resistance implemented using a general impedance converter to realize a bi-quad filter, wherein the amplifier and the frequency dependent negative resistance perform a voltage-to-current conversion and a current-to-voltage conversion, respectively at a first frequency."

In this regard, both *Vignali* and *Regan* apparently describe the combination of two FDNR networks coupled in series to implement a bi-quad filter. Neither reference discloses, teaches, or suggests a single frequency dependent negative resistance implemented using a general impedance converter to realize a bi-quad filter. Accordingly, the proposed combination cannot render Applicant's claimed low-noise filter for a wireless receiver obvious for at least the reason that the proposed combination does not disclose, teach, or suggest Applicant's claimed filter. Thus, Applicant's independent claim 6 is allowable.

Because independent claim 6 is allowable, dependent claims 7-10, which depend either directly or indirectly from claim 6, are also allowable. *See In re Fine, supra*. Accordingly, Applicant respectfully requests that the rejection of claims 6-10 be withdrawn.

3. Claims 11-15

For convenience of analysis, Applicants' independent claim 11, as amended, is repeated below in its entirety.

11. A portable transceiver, comprising:
 - a modulator configured to receive and modulate a data signal;
 - an upconverter configured to receive the modulated data signal and provide a radio frequency (RF) signal;
 - a transmitter configured to transmit the RF signal; and

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a direct conversion receiver including an amplifier and a filter, the filter comprising a single frequency dependent negative resistance implemented using a general impedance converter to realize a bi-quad filter, wherein the amplifier and the frequency dependent negative resistance perform a single voltage-to-current conversion and a single current-to-voltage conversion.

(Applicant's amended independent claim 11 – *emphasis added*.)

The proposed combination of references fails to disclose, teach, or suggest at least the emphasized element of pending claim 11 as shown above. Consequently, claim 11 is allowable.

As shown above, both *Vignali* and *Regan* apparently describe the combination of two FDNR networks coupled in series to implement a bi-quad filter. Neither reference discloses, teaches, or suggests “a direct conversion receiver including an amplifier and a filter, the filter comprising a single frequency dependent negative resistance implemented using a general impedance converter to realize a bi-quad filter, wherein the amplifier and the frequency dependent negative resistance perform a single voltage-to-current conversion and a single current-to-voltage conversion.” Accordingly, the proposed combination cannot render Applicant's claimed portable transceiver obvious for at least the reason that the proposed combination does not disclose, teach, or suggest Applicant's claimed direct conversion receiver. Thus, Applicant's independent claim 11 is allowable.

Because independent claim 11 is allowable, dependent claims 12-15, which depend either directly or indirectly from claim 11, are also allowable. *See In re Fine, supra*. Accordingly, Applicant respectfully requests that the rejection of claims 11-15 be withdrawn.

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CONCLUSION

In summary, Applicant respectfully submits that presently pending claims 1-19 are allowable and the present application is in condition for allowance. Accordingly, a Notice of Allowance is respectfully solicited. Should the Examiner have any comments regarding the Applicant's response or intends to dispose of this matter in a manner other than a Notice of Allowance, Applicant requests that the Examiner telephone Applicant's undersigned attorney.

Respectfully submitted,

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